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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Animal Disease Eradication Division  
Special Diseases Eradication  
Washington 25, D. C.

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ANNUAL REPORT OF COOPERATIVE STATE-FEDERAL SHEEP SCABIES ERADICATION ACTIVITIES  
FISCAL YEAR 1962

PSOROPTIC SHEEP SCABIES

Psoroptic scabies was reported in 767 flocks of 62,251 sheep in 316 counties in 24 States compared to 872 flocks in 296 counties in 24 States in 1961. 121 infected lots were found at public stockyards during fiscal year 1962 and 187 during the previous year. 12,771,677 sheep were inspected during 1962 and 591,231 dipped--an increase over 1961 when 12,031,249 were inspected and 506,745 dipped.

PROGRAM ACTIVITIES FISCAL YEARS 1954 THROUGH 1962

Fiscal Year	Number of Infected States	Number of Infected Counties	Number of Infected Flocks	Total Inspections	Total Dippings	Public Stockyards Infected Lots	Sheep Inspected
1954	21	183	391	5,477,334	390,530	68	13,179,281
1955	24	219	442	5,587,267	391,952	72	13,447,297
1956	25	267	607	8,730,299	441,713	110	12,835,044
1957	24	289	682	11,994,987	573,810	150	12,791,764
1958	24	300	726	9,500,782	356,854	206	11,626,207
1959	24	276	736	10,848,946	309,609	209	11,908,863
1960	25	280	886	10,836,576	390,958	214	12,351,029
1961	24	296	872	12,031,249	506,745	187	12,304,306
1962	24	316	767	12,771,677	591,231	121	11,722,578

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CURRENT SERIAL RECORDS

OUTBREAKS IN SHEEP SCABIES FREE AREASCALIFORNIA

On January 12, psoroptic scabies was diagnosed in a San Joaquin County feedlot flock of 1300 sheep. Regulatory officials had been called by the owner to investigate a skin condition in the flock. A State hold order was issued, and two dippings completed.

Epidemiological studies revealed that this outbreak was related to outbreaks in San Benito and Madera Counties diagnosed on March 6, 1961, and September 14, 1961, respectively.

In June 1961, the San Joaquin County owner purchased 790 feeder lambs from the owner involved in both the San Benito County and the Madera County outbreaks. Within a few weeks, all but 166 of the 790 lambs were sold for slaughter. These 166 were moved in October to a different location in San Joaquin County where additional lambs were purchased and added until a band comprising 1300 head was collected.

This outbreak illustrates, as in other cases, the necessity for not only inspecting movements from the infected flocks, but dipping them also. In this particular case, the source flock had been dipped twice but subsequent inspections disclosed that the disease had apparently continued to persist.

NEW MEXICO

Widespread sheep scabies was found in New Mexico during the fiscal year. The State had been declared free of the disease in August 1961, following eradication of an outbreak discovered in September 1960.

The fiscal year 1962 outbreak was unusual for New Mexico in that cases were reported from widely scattered points. The first case was diagnosed in October 1961 in Eddy County. Cases were found during the next several months in Otero, Lincoln, Colfax, Bernalillo, Valencia, Guadalupe, Lea, and Socorro Counties. Spread was probably from Eddy County through an auction market. One flock in Eddy County was found to be infected in February 1961, was dipped twice, and again found to be infected in October.

The entire State--except the Navajo Indian Reservation--was declared an infected and eradication area effective January 18, 1962. The disease did not exist among reservation sheep, and animals moved both in and out of the reservation were routinely inspected and dipped as required.

Control measures included inspecting sheep to locate any additional infected flocks, tracing movements of exposed or possibly infected sheep to locate sources of outbreaks, quarantining infected and exposed flocks until they were properly dipped under supervision, reinspecting flocks 60 days after treatment, and enlisting the aid of flock owners and dealers in reporting suspected cases.

At the close of the fiscal year the status of New Mexico under Part 74 (9 CFR) was unchanged. However, on August 20, 1962, an amendment added eighteen counties and parts of two counties to the Sheep Scabies Free Areas leaving twelve counties and parts of two counties in the eradication areas.

MISSISSIPPI

Following a county agent's report the first scabies-infected sheep since fiscal year 1958 were found by a livestock inspector January 3, 1962 in Washington County. The three sheep involved in one flock had been purchased during the winter of 1961 from a second Washington County flock of 180 sheep also found infected. Sales from this source flock were traced to a third Washington County flock inspected and found infected.

Seventy-five lambs had been introduced into the source flock from a sale at Greenville, Mississippi. They had been consigned to the sale from two locations in Arkansas, five locations in Louisiana, and eight farms in Mississippi.

All infected and exposed sheep were quarantined and dipped in accordance with official program requirements. All flocks in the three States known to have contributed sheep to the source flock were inspected with negative results.

#### ACTIVE PROGRAMS DEVELOPED IN MANY STATES

In August 1960, when the active eradication program began, 1,444 counties were considered sheep scabies free; an active eradication program was underway in 44 counties in one State; and 1,666 infected counties in 23 States and territories failed to qualify as Sheep Scabies Eradication Areas. By July 1, 1962, the number of scabies free counties had increased to 1,637 (a net increase of 193 counties); 549 counties (an increase of 1,250 percent) were qualified as Sheep Scabies Eradication Areas; and the number of infected counties in which an eradication program had not been established had been reduced from 1,666 to 968 (a reduction of more than 40 percent).

#### UNIFORM ERADICATION PROCEDURES FOLLOWED

ADE Division Memorandum No. 505.6, dated November 21, 1960, spelled out criteria believed necessary by State and Federal regulatory officials for establishing Sheep Scabies Eradication Areas provided for in 9 CFR, Part 74 and provided a framework within which infected States could eradicate the disease and achieve the advantages of Sheep Scabies Free Status.

Since the beginning of the accelerated program in August 1960 all States and parts of States achieving eradication and free status have done so in accordance with provisions contained in this memorandum.

#### ERADICATION ACHIEVED IN SEVERAL STATES

There has been considerable progress in many States since the accelerated program began in August 1960. At that time, 26 States were designated as scabies free, 23 as infected, and one State--South Dakota--divided with the western portion considered scabies free and the eastern portion the only official Sheep Scabies Eradication Area.

Arkansas became the first entire State, considered to be sheep scabies infected when the present accelerated eradication program began in August 1960, to be declared free of the disease. This action was effected by amending Part 74 of Title 9 CFR, on January 19, 1962.

North Dakota in May 1962 became the second entire State, considered infected in August 1960, to be declared free. Sixteen counties and parts of 2 others in western North Dakota had previously been declared free in December 1961.

Other States having areas freed of sheep scabies since the beginning of the accelerated program include: Kansas, Michigan, Nebraska, and South Dakota.

#### A NEW APPROACH TRIED OUT IN WISCONSIN

The cooperative eradication program in Wisconsin tried for the first time procedures vastly accelerated from those ordinarily followed. The program included all standard eradication tools and procedures accelerated to the point where all flocks of sheep (approximately 8,000) were inspected during a period of less than one month. The program was preceded by an excellent public information and relations effort. Approximately 300 State and Federal employees were marshalled and trained to make the necessary inspections. The effort was very successful and the State will soon be qualified as a Sheep Scabies Free Area.

#### OTHER STATES ADOPTING ACCELERATED ERADICATION CONCEPT

Several States are finding it expedient to marshal their forces and conduct training programs immediately followed by concentrated inspectional activities designed to inspect all flocks in the State during a period of 3 months or less. These States include New York, Pennsylvania, Minnesota, New Jersey, and Oklahoma. Additional States are planning to inspect all sheep at a slower rate, but during a single cold weather season.

OTHER ACTIVITIES OF INTEREST

Maceration Technique Capability Developed in Many States

Capability for conducting the maceration method for demonstrating scabies mites in skin scrapings from scabies suspicious animals when other means have failed has been developed at many of the State-Federal brucellosis laboratories and public stockyards. The technique has proven to be a valuable tool in deciding on questionable cases of scabies in many locations during the past year. The maceration technique is described in ADE Division Memorandum No. 505.7 dated August 29, 1961. Additional information pertaining to equipment is furnished by ADE Division Notices dated February 19, 1962, and September 6, 1962.

Scabies Training Courses

Scabies training courses in cooperation with the States concerned were held in Kentucky and Wisconsin where some 360 persons received on-the-job instruction in the important aspects of the program and in eradication principles. This was an increase over 1961 when 180 persons received such training.

The purpose of the training courses is to acquaint field employees with the scabies problem, development and organization of the eradication program, and to train them in the fundamentals of diagnosing the disease, dipping animals, vat management, and in the principles of scabies eradication.

Previous similar scabies training schools have been held in Harrisburg, Pennsylvania; Ithaca, New York; Columbia, Missouri; Ames, Iowa; and Albuquerque, New Mexico. At 34 training sessions approximately 650 State and Federal inspectors representing 32 States have received the training to date. Additional training schools are planned.

USDA Program Aid No. 458 "Eradicating Sheep Scabies" Prepared and Distributed

In July 1961 the Division issued Program Aid 458, a leaflet titled "Eradicating Sheep Scabies." This concise publication has proved very useful as a handout in areas where the disease has been a problem. The leaflet is written for use by farmers, ranchers, and stockmen and provides general information concerning all aspects of the disease.

Pocket Reference to Federal Sheep Scabies Regulations Prepared and Distributed

Publication ARS 91-32, dated February 1962, was issued to field stations and the public as a pocket reference to Federal requirements governing the interstate movement of sheep with respect to scabies. The leaflet summarizes in chart form, easily understood by producers and shippers, the sheep scabies regulation appearing in Part 74 (as amended) of Title 9, Code of Federal Regulations.

Monthly Report of Scabies Eradication (ADE Form 5-10) Revised

The revised form provides more concise information in less space than its predecessor and makes scabies eradication data compilation easier.

Mite Chart Prepared and Distributed

A useful chart, CA 5-1, dated May 1961, "Photomicrographs of Adult Scabies Mites" and drawings of mites found on livestock and other animals was distributed.

Alleged Interstate Violations and Results of Prosecutions Relating to 9 CFR, Part 74, Scabies in Sheep\*

Alleged violations investigated and disposed of:

Cases successfully prosecuted . . . . .	3
Cases declined for prosecution by U.S. Attorneys . . . . .	2
Cases closed by letters of warning with the concurrence of Justice Department . . .	5
Cases pending (with U.S. Attorneys or the Justice Department . . . . .	8
Cases presently under investigation . . . . .	10

\*Based on reports received in Washington D. C. Interstate Regulation Enforcement Staff Office during the period August 1960 through June 1962. 15 cases were closed when further investigation disclosed no violation occurred or due to lack of sufficient evidence for successful prosecution.

#### Attempts to Transfer Psoroptic Mites from Elk to Sheep Fail

During the fiscal year 1961 psoroptic mites were again found on elk and an attempt was made to learn if the elk scabies mite Psoroptes equi var. cervinae could be artificially transferred to domestic cattle and sheep. Elk skin scrapings containing a large number of live mites were affixed to the hair/wool of three calves and three sheep and placed in the ears of two of the calves and two of the sheep. Careful examinations at 6 and 12-week intervals revealed no live mites and indicated that the mites had failed to transfer. This work was done at Laramie, Wyoming, and was repeated during fiscal year 1962 with similar results.

#### Useful Working Draft Prepared - "Determining Field Efficacy of Acaricides Being Considered for Addition to List of Permitted Dips"

A working draft with this title was distributed in December 1961 to provide a guide for manufacturers interested in qualifying their products for addition to the list of permitted dips. The draft also furnishes regulatory employees guidelines for participating in field trials designed to determine the efficacy of chemicals as acaricides and to establish accurate vat management procedures.

#### Acaricide Evaluation Questionnaire and Recording Forms Developed

This questionnaire provides a convenient means for summarizing research and field data pertinent to the efficacy of an acaricide as a permitted dip and for developing practical and safe procedures for its use. Forms for recording information (ADE Forms 5-14a through 5-14h) useful for developing and recording pertinent data were developed also.

#### Field Trials with Acaricides

Field Trials to establish and determine the accuracy of vat management procedures and also to determine the proper replenishment ratios for lindane and toxaphene used in sheep dipping vats were conducted in New Mexico, Texas, Kentucky, Nebraska, and California during the fiscal year.

#### Additional Inspections Reported by Personnel Doing Other Work and Scabies Reports Correlated

Increased scabies inspections were realized by regulatory personnel who also inspected animals for scabies during the course of other duties and reported their scabies inspections. ADE Division Memorandum No. 505.10, dated March 7, 1962, called attention to the correlation of scabies reports.

#### ADE Division Chemical Laboratory Improves Capability for Quantitative Analysis Testing

The capability for conducting quantitative analyses of dip samples on a mass production basis was developed at the ADE Division Chemical Laboratory, Laboratory Services, Beltsville, Maryland. This laboratory which was relocated to new facilities during the year has made notable progress in servicing the scabies program.

#### Lists of Permitted Dips Brought up to Date

Division memorandums updating lists of permitted dips were issued as follows:

ADE Division Memorandum No. 510.14, dated June 16, 1961, pertaining to nicotine dips;

ADE Division Memorandum No. 510.8, dated September 8, 1961, pertaining to lime and sulphur dips; and

ADE Division Memorandum No. 505.1, Supplement No. 3, dated April 9, 1962, covering toxaphene emulsions for use as sheep dips.

#### Cold Lime and Sulphur Field Trials Continued

Field trials using cold lime and sulphur plus a wetting agent as a scabicide in sheep were initiated in Iowa during the winter of 1959-60 when eight infected flocks were dipped. Results were evaluated during the winter of 1960-61.

The results were encouraging and the dipping trials were repeated during the winter of 1960-61 when 31 infected flocks were dipped. Results of these trials were evaluated during the winter of 1961-62.

In the two series of trials 39 infected flocks were treated twice. Twenty-nine of these flocks were inspected for a 12-month period following dipping. The remaining 10 flocks had been sold out at the owners' request after negative inspections.

Of the 39 infected flocks treated, inspections during the 12-month periods demonstrated complete eradication in all except one flock. Participating officials feel that circumstances were such that the one flock does not constitute a failure of the use of cold lime and sulphur.

Evaluation of the use of cold lime and sulphur with a wetting agent is continuing.

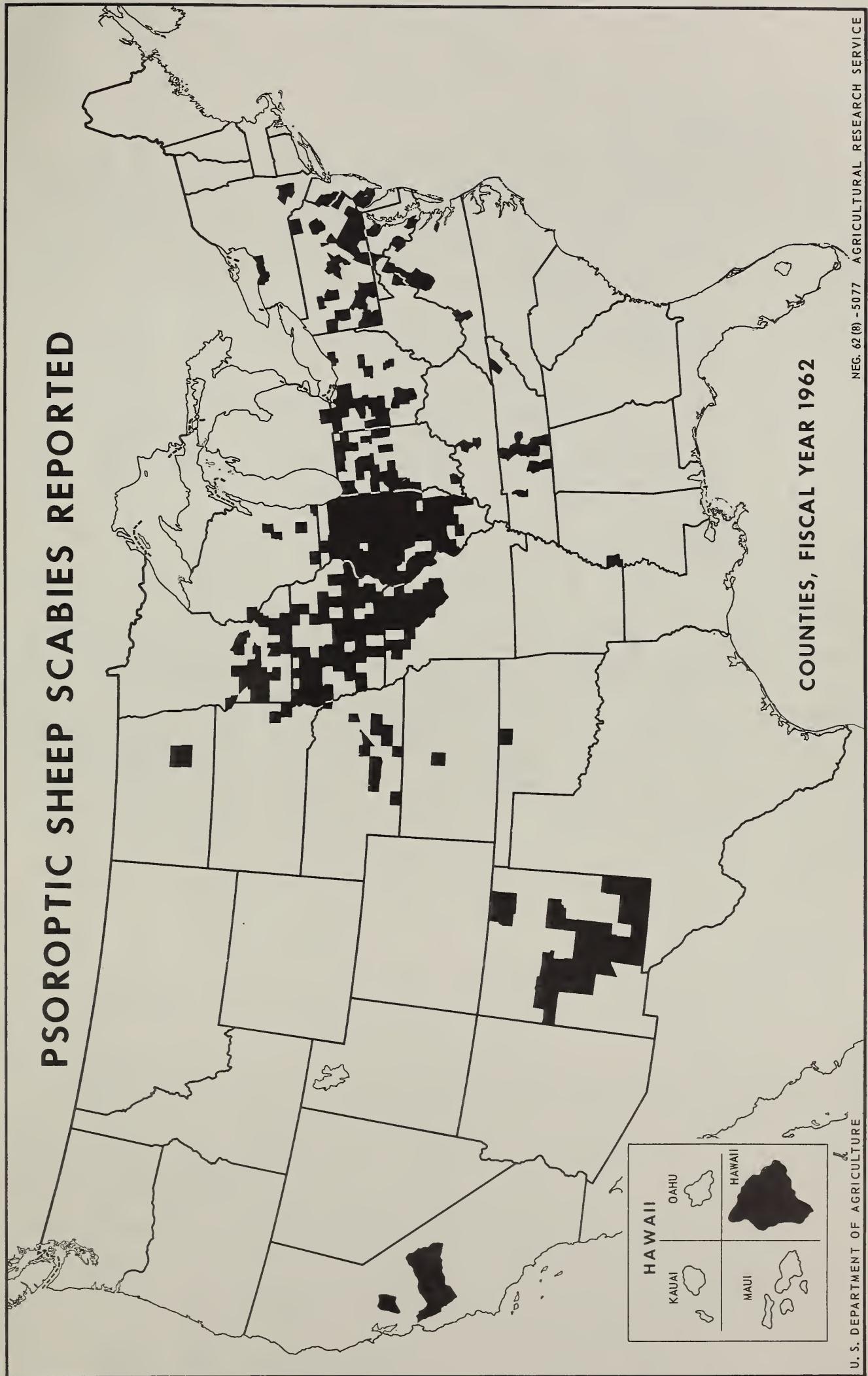
PSOROPTIC SHEEP SCABIES

As Reported From Respective States	Number of Infected Counties	Number of Infected Flocks	Number of Infected Sheep	Total Inspections	Total Dippings
Alabama	0	0	0	*98	2,780
Alaska	0	0	0		6,000
Arizona	0	0	0	*902	409,828
Arkansas	0	0	0	*3,332	78,540
California	4	3	1,459	*356	1,421,922
Colorado	0	0	0		313,707
Connecticut	0	0	0		153
Delaware	0	0	0		2,439
Florida	0	0	0		2,528
Georgia	0	0	0		1,570
Hawaii	1	1	5,500		6,592
Idaho	0	0	0		1,501,634
Illinois	75	286	11,996		593,902
Indiana	26	35	3,820		41,620
Iowa	56	147	11,432		62,942
Kansas	1	1	85	*74	399,627
Kentucky	2	2	64		108,506
Louisiana	0	0	0		134,915
Maine	0	0	0	0	0
Maryland	3	5	184		4,457
Massachusetts	0	0	0		4,863
Michigan	1	2	256		166,791
Minnesota	19	29	2,324		1,313
Mississippi	1	3	196	*47	19,551
Missouri	22	45	3,820	*150	7,415
Montana	0	0	0		16,111 <sup>a</sup>
Nebraska	12	28	2,553		185,464
Nevada	0	0	0		62,987
New Hampshire	0	0	0	0	0
New Jersey	5	12	408		38,305
New Mexico	9	13	6,741		1,534,139
New York	3	4	105		190,534
North Carolina	0	0	0	*23	3,547
North Dakota	1	1	114		408,146
Ohio	23	57	4,877		8,316
Oklahoma	1	1	300	*400	9,667
Oregon	0	0	0	*25	9,262
Pennsylvania	21	43	1,341		239,177
Rhode Island	0	0	0		1,739
South Carolina	0	0	0		875
South Dakota	2	3	1,173	*6	1,305,098
Tennessee	12	27	1,443		131,010
Texas	0	0	0	*57,195	2,869,933
Utah	0	0	0	*1,580	62,994
Vermont	0	0	0		7,119
Virginia	9	11	1,164		3,145
Washington	0	0	0	*5	53,749
West Virginia	1	1	35		2,920
Wisconsin	6	7	861		264,456
Wyoming	0	0	0		69,389
Puerto Rico	0	0	0		0
Virgin Islands	0	0	0		0
<b>TOTALS:</b>	<b>316</b>	<b>767</b>	<b>62,251</b>	<b>12,771,677</b>	<b>591,231</b>
				<b>*64,193</b>	<b>*3,231</b>

\*Goats

a-In addition 257,942 sheep were  
inspected by Montana Deputy State  
Veterinarians at auction markets.

# PSOROPTIC SHEEP SCABIES REPORTED



NEG. 62 (8) -5077 AGRICULTURAL RESEARCH SERVICE

U. S. DEPARTMENT OF AGRICULTURE

PSOROPTIC SHEEP SCABIES - States and Counties Involved

California - Fresno, Madera, San Benito, San Joaquin

Hawaii - Hawaii

Illinois - Adams, Bond, Bureau, Calhoun, Carroll, Cass, Champaign, Christian, Clark, Clay, Clinton, Coles, Cook, De Kalb, De Witt, Douglas, Du Page, Edgar, Edwards, Effingham, Fayette, Ford, Fulton, Gallatin, Greene, Grundy, Hancock, Henderson, Henry, Iroquois, Jasper, Jefferson, Jersey, Kane, Kankakee, Kendall, Knox, La Salle, Lee, Livingston, Logan, McDonough, McLean, Macon, Madison, Marion, Marshall, Mason, Menard, Mercer, Monroe, Montgomery, Moultrie, Ogle, Peoria, Perry, Piatt, Pike, Putnam, Richland, Rock Island, Saint Clair, Sangamon, Schuyler, Scott, Shelby, Stephenson, Tazewell, Vermilion, Warren, Wayne, White, Whiteside, Will, Woodford

Indiana - Benton, Boone, Carroll, Cass, De Kalb, Elkhart, Fountain, Fulton, Jay, Lagrange, Lake, Madison, Miami, Montgomery, Noble, Parke, Porter, Pulaski, Randolph, Saint Joseph, Tippecanoe, Vermillion, Vigo, Warrick, Wells, Whitley

Iowa - Adair, Appanoose, Audubon, Benton, Black Hawk, Boone, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cedar, Cherokee, Chickasaw, Clay, Davis, Dickinson, Greene, Grundy, Guthrie, Henry, Howard, Iowa, Jasper, Jefferson, Johnson, Jones, Keokuk, Kossuth, Lucas, Lyon, Madison, Marion, Marshall, Mitchell, Monroe, Muscatine, O'Brien, Palo Alto, Plymouth, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Scott, Shelby, Sioux, Story, Union, Van Buren, Warren, Washington, Wayne, Webster, Woodbury

Kansas - Russell

Kentucky - Hardin, Hart

Maryland - Baltimore, Saint Marys, Washington

Michigan - Lenawee

Minnesota - Big Stone, Blue Earth, Chippewa, Cottonwood, Dodge, Faribault, Freeborn, Goodhue, Hennepin, Kandiyohi, Lincoln, Lyon, Mower, Redwood, Renville, Sibley, Steele, Wright, Yellow Medicine

Mississippi - Washington

Missouri - Adair, Audrain, Boone, Callaway, Chariton, Daviess, Gentry, Harrison, Howard, Knox, Lewis, Linn, Livingston, Macon, Monroe, Montgomery, Putnam, Randolph, Schuyler, Scotland, Shelby, Sullivan

Nebraska - Buffalo, Clay, Colfax, Dakota, Dawson, Fillmore, Howard, Merrick, Red Willow, Seward, Webster, York

New Jersey - Cumberland, Gloucester, Hunterdon, Salem, Warren

New Mexico - Bernalillo, Colfax, Eddy, Guadalupe, Lea, Lincoln, Otero, Socorro, Valencia

New York - Monroe, Ulster, Wayne

North Dakota - Stutsman

Ohio - Allen, Champaign, Clinton, Cuyahoga, Darke, Fayette, Fulton, Greene, Hancock, Hardin, Henry, Highland, Holmes, Knox, Logan, Mercer, Miami, Perry, Sandusky, Seneca, Shelby, Williams, Wood

Oklahoma - Grant

Pennsylvania - Bucks, Butler, Centre, Chester, Cumberland, Dauphin, Forest, Franklin, Greene, Jefferson, Lancaster, Lebanon, Luzerne, Mercer, Mifflin, Northumberland, Somerset, Susquehanna, Washington, Westmoreland, York

South Dakota - Lake, Minnehaha

Tennessee - Bedford, Benton, Coffee, De Kalb, Franklin, Giles, Hawkins, Maury, Rutherford, Sumner, Unicoi, Wilson

Virginia - Augusta, Fairfax, Frederick, Giles, New Kent, Prince William, Pulaski, Rockingham, Shenandoah

West Virginia - Hardy

Wisconsin - Green Lake, Jefferson, Kenosha, Lafayette, Pierce, Winnebago